



# Introduction

Every firearm has individual characteristics that are as unique to it as fingerprints are to human beings. When a firearm is fired, it transfers these characteristics—in the form of microscopic scratches and dents—to the projectiles and cartridge casings fired in it. The barrel of the firearm marks the projectile traveling through it, and the firearm's breech mechanism marks the ammunition's cartridge casing.

This fact creates a great opportunity for law enforcement. When bullets or cartridge casings are found at a crime scene, firearms examiners can use the marks for comparison, to determine whether or not the bullets or casings were expelled from a suspect's firearm. If a firearm is recovered at the scene, a testfire of the weapon creates example bullets and cartridge casings for comparison. Bullets and cartridge casings found at one crime scene can also be compared with those found at another in order to link the crimes.

The comparison of ballistic evidence has in the past been a tedious and time-consuming process. Evidence recovered at crime scenes or from recovered firearms was compared, piece by piece, to the vast inventory of recovered or test-fired projectiles and casings. No means of automatic comparison existed; the necessity of searching each piece manually greatly reduced the amount of evidence that could be examined, given manpower and time constraints, and made matches less likely. Severe stress and eyestrain on firearms examiners slowed the process even more.

In developing the National Integrated Ballistic Information Network (NIBIN), ATF recognized the benefit to law enforcement that ballistic imaging and analysis could provide. The NIBIN Program includes the development and maintenance of a database of ballistic images from crime guns. The database contains images of casings or bullets recovered at crime scenes, as well as casings or bullets from testfires of recovered firearms. As new images are entered, the system searches the existing database and comparisons are made for possible matches. The purpose of these comparisons is to link ballistic evidence from crime scenes, linking one crime scene to another. When the NIBIN system discovers a likely match, firearms examiners repeat the comparison with the actual evidence to confirm the match.

This program was developed to work in concert with all of ATF's firearms enforcement initiatives. With the NIBIN Program, ATF has successfully integrated its expertise in the regulation of the firearms industry and the effective enforcement of Federal firearms laws with technological advances in the forensic ballistic examination field. This unique program uses all of the resources that ATF has to offer in working with our law enforcement counterparts to reduce firearms violence